
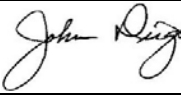


**ABBREVIATED SAMPLING AND ANALYSIS PLAN
FOR THE HARD CHROME PLATING SITE**

TDD#:	S05-0001-1502-007	
EPA OSC:	Michael Beslow	
SITE NAME:	Olympic Oil Antifreeze Release	
SITE LOCATION:	5000 W. 41 st Street, Cicero, Cook County, Illinois 60804	
SAMPLING ACTIVITIES:	Removal Sampling Activities	
SAMPLING DATES:	November 2015	
SAP PREPARER:	Matt Villicana	
SIGNATURE/DATE		
QC REVIEWER:	John Dirgo	
SIGNATURE/DATE:		
EPA OSC APPROVAL SIGNATURE/DATE:		
Document Tracking Number (DTN):	0289	

OBJECTIVE OF SAMPLING

Tetra Tech, Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) will provide written and photographic documentation and soil and groundwater sampling during the removal assessment of the Olympic Oil Site located at 5000 W. 41st Street in Cicero, Cook County, Illinois. A 50,000-gallon release of antifreeze occurred at the Olympic Oil site on February 8, 2015, which was observed to have breached the containment as evidence of antifreeze was observed between the containment and a sheet piling wall at the Chicago Ship and Sanitary Canal. The purpose of the removal sampling is to determine whether further removal action is warranted in accordance with Title 40 Code of Federal Regulations, Part 300.415. Removal sampling activities are anticipated to be conducted in November 2015.

The site is located in an urban area on the south side of Cicero, Illinois. The immediate vicinity is composed of industrial properties. The site is bounded to the north by the Chicago Ship and Sanitary Canal, to the east by a petroleum refinery, to the south by W. 41st Street and railroad tracks beyond, and to the west by vacant land (see Figures 1 and 2). According to information provided to Tetra Tech START, Olympic Oil representatives indicate that when the 50,000-gallon antifreeze release occurred, 75,000 gallons of antifreeze mixed with water and snowmelt were recovered. Olympic Oil representatives also indicate that if any product remained in the ground, it would naturally biodegrade within 2 to 12 days. USEPA On-Scene Coordinator, Michael Beslow, plans to execute a warrant allowing access to the site with equipment to conduct sampling of the soils and groundwater to verify if any product remains or if there is an ongoing release. No further information has been provided to Tetra Tech START prior to the development of this Abbreviated Sampling and Analysis Plan.

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SAMPLING METHODS

Sampling will include collecting up to 45 soil samples from several locations at the site including: the secondary containment area, containment areas of antifreeze storage tanks, the truck loading area, and a strip between the secondary containment area and Chicago Ship and Sanitary Canal. All of the samples collected will be submitted to a Tetra Tech-procured laboratory for ethylene glycol, diesel-range organics (DRO), gasoline-range organics (GRO), and extended-range organics (ERO) analyses. Table 1 presents a summary of the proposed waste samples to be submitted to the laboratory for confirmation.

During the removal assessment, Tetra Tech START will conduct the following sampling activities.

- Use a MultiRAE and Lumex RA 915+ to determine background levels of various contaminants prior to the commencement of removal assessment activities. Background levels will be used for comparison while opening closed containers for sampling.
- At the onset of sampling, Tetra Tech personnel will wear appropriate Level B personal protective equipment (PPE) while opening sealed drums and containers. Tetra Tech will use a MultiRAE to monitor ambient air in the breathing zone of and near the openings of the drums and containers for potential unsafe conditions.
- If the readings on the MultiRAE do not indicate the presence of contaminants above background levels or action levels for specific constituents, Tetra Tech will downgrade to Level C PPE.
- Collect an industrial hygiene air sample to be analyzed for hexavalent chromium. The sample will be collected using a personal air sampling pump and filter cassette following Occupational Safety and Health Administration (OSHA) Method ID-103.
- Conduct field pH and cyanide analyses of the materials in the drums and containers in accordance with the procedures contained in Tetra Tech's *Hazard Categorization Field Chemistry Tests, A Guide to Categorizing Unknown Materials in the Field*, December 2013.
- If additional testing is needed for specific samples, sampling will follow the Tetra Tech guide mentioned above.
- Based on the field pH and cyanide analyses, Tetra Tech will collect and submit about 14 waste samples to a procured laboratory for confirmation, as follows: three samples from a labeled container to confirm that the contents match the label, three samples from materials that field tested as non-hazardous, and eight samples from materials that field tested as hazardous.
- Label and number all drums as they are opened and sampled.
- Complete a container/drum log for all containers that underwent field hazard categorization and sampling for laboratory analysis (see Attachment 1).

In addition to field hazard categorization and waste sampling activities, Tetra Tech will conduct the following tasks during the removal assessment:

- Assess site conditions for potential threats to human health and the environment in accordance with 40 CFR 300.415. These threats may include fire or explosion, potential for release of hazardous substances from the drums and containers, threats to drinking water supplies, exposure to human populations such as trespassers due to unsecured hazardous substances, and contaminated soil near the surface that resulted from releases from the drums and containers that may contain hazardous waste.
- If observed, stained soil areas that might be contaminated will be estimated and labeled on a map of the property. Stained soil areas will not be sampled.

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- Prepare a site inventory that includes the estimated the number of drums, containers, vats, and totes; their condition, estimated volume, and description of suspected contents; field hazardous categorization results; and laboratory results, when available. The form for completing the site inventory is provided in Attachment 2.

Field pH and cyanide analyses and waste sampling activities will be conducted in accordance with the following Tetra Tech standard operating procedures (SOP) and guidance document:

- Tetra Tech SOP NO. 003, “Organic Vapor Monitoring,” 2009
- Tetra Tech SOP No. 008, “Containerized Liquid, Sludge, and Slurry Sampling,” 2000
- Tetra Tech, “Hazard Categorization Field Chemistry Tests, A Guide to Categorizing Unknown Materials in the Field,” December 2013

SOPs are included in Attachment 3.

SAMPLE HANDLING

Field pH and cyanide analyses will be documented on container log sheets provided in Attachment 1 of this SAP. Details regarding waste samples collected from on-site drums, containers, vats, and totes will be noted in the site logbook in accordance with Tetra Tech SOP No. 024, “Recording Notes in Field Logbooks.” The collected samples will be labeled, packaged, and shipped in accordance with procedures outlined in Worksheets #26 and 27 of Tetra Tech’s START QAPP and Tetra Tech SOP No. 019, “Packing and Shipping Samples.” The samples will be analyzed by a Tetra Tech-procured laboratory. The waste samples will be analyzed for pH in accordance with EPA Method 150.1, total metals in accordance with EPA SW-846 Method 6010C and 7470A, hexavalent chromium in accordance with in accordance with SM 3500-Cr D, and Toxicity Characteristics Leaching Procedure (TCLP) metals and mercury in accordance with SW-846 Methods 1311, 6010C, and 7470A. The industrial hygiene air sample will be analyzed for hexavalent chromium in accordance with Occupational Safety & Health Administration method ID-103. Table 2 provides a list of the analytical methods, preservation, holding times, and required sample containers.

QUALITY ASSURANCE/QUALITY CONTROL

Field quality assurance and quality control (QA/QC) measures include the collection of one duplicate sample per 10 samples. All samples collected during this removal assessment are suspected to be waste and may be highly concentrated; therefore, extra volume for matrix spike/matrix spike duplicate (MS/MSD) samples will not be collected. The Tetra Tech project manager, Kelly Thomas, will be responsible for ensuring that sample quality and integrity are maintained and that sample label and documentation procedures are in accordance with the START QAPP and this abbreviated SAP. Upon receipt of the results, Tetra Tech START will review the laboratory data package(s) for completeness and will conduct Stage 2A (cursory) data validation in accordance with Tetra Tech SOP No. 203, “Laboratory Analytical Data Verification – Minimum Requirements.”

DECONTAMINATION

Dedicated sampling equipment and personal protective equipment (PPE) will be double-bagged and disposed of with all other used PPE waste produced at the site. Tetra Tech anticipates that all sampling equipment including drum thieves and coliwassas will be dedicated to each sample and will be disposable. In the event that sampling equipment requires decontamination, Tetra Tech will conduct equipment

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decontamination in accordance with Tetra Tech SOP No. 002, “General Equipment Decontamination.” All investigation-derived waste (IDW) including disposal PPE, sampling equipment and supplies, will be double-bagged and disposed of as dry industrial waste in accordance with the EPA Office of Emergency and Remedial Response (OERR), *Management of Investigation-Derived Waste During Site Inspections* (EPA Document No. EPA/540/G-91/009, OERR Directive No. 9345.3-02i, May 1991).

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**TABLE 1
SAMPLING REQUIREMENTS WORKSHEET**

Matrix ^a	Parameter ^b	Number of Investigative Samples	Number of Quality Control (QC) Samples ^c						Total Number of Investigative and QC Samples	Total Number of Sample Containers
			Matrix Spike (MS)	Matrix Spike Duplicate (MSD)	Field Duplicate or Split	Equipment Blank	Field Blank	Trip Blank		
Air	Chromium VI	1	0	0	0	0	0	0	1	1
Waste	pH, Total Metals, TCLP Metals + Mercury	14	0	0	2	0	0	0	16	48
Waste	Chromium VI	5	0	0	1	0	0	0	6	6

Notes:

^a Matrix includes waste.

^b Refer to Table 2 for required sample volumes, containers, preservation techniques, and holding times.

^c Refer to Worksheet 20 of the Tetra Tech, Inc. START Region 5 Quality Assurance Project Plan (QAPP) for typical QC sample types and frequencies.

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**TABLE 2
SAMPLE VOLUMES, CONTAINERS, PRESERVATION TECHNIQUES, AND HOLDING TIMES**

Matrix	Parameter	Method of Analysis	Volume and Container	Preservation Techniques	Holding Time ^a (Extraction/Analysis)
Air	Chromium VI	ID-103	One 37mm MCE Cassette (30-960 L)	NA	NA
Waste	pH	EPA 150.1	One 2-oz glass jar with Teflon-lined lid	Ice	Analyze immediately
Waste	Total Metals	SW-846 6010B and 7470A	One 4-oz glass jar with Teflon-lined lid	Ice	180 days to extract (28 days for mercury) 180 days to analyze extract (28 days for mercury)
Waste	Chromium VI	SM3500-Cr D	One 8-oz glass jar with Teflon-lined lid	Ice	24 hours to extract 24 hours to analyze extract
Waste	TCLP Metals	SW-846 1311, 6010C	One 4-oz glass jar with Teflon-lined lid	Ice	180 days to extract 180 days to analyze extract
Waste	TCLP Mercury	SW-846 1311, 7470A		Ice	28 days to extract 28 days to analyze extract

Note:

^a The TCLP method specifies holding times from sample collection to extraction, from extraction to preparation (if applicable), and from sample extraction to analysis.

EPA U.S. Environmental Protection Agency
mm Millimeter
MCE Mixed Cellulose Ester
Oz Ounce
SW-846 U.S. Environmental Protection Agency, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) available at the following web address: <http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm>.

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TCLP Toxicity Characteristic Leaching Procedure

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FIGURES

**ABBREVIATED SAMPLING AND ANALYSIS PLAN
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**ATTACHMENT 1
TETRA TECH CONTAINER INVENTORY LOG**

**ABBREVIATED SAMPLING AND ANALYSIS PLAN
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**ATTACHMENT 2
TETRA TECH SITE INVENTORY FORM**

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ATTACHMENT 3

**TETRA TECH
ENVIRONMENTAL STANDARD OPERATING PROCEDURES (SOP)
And
GUIDANCE FIELD HAZARD CATEGORIZATION DOCUMENT**

SOP NO.	TITLE
SOP NO. 003	ORGANIC VAPOR MONITORING, 2009
SOP NO. 008	CONTAINERIZED LIQUID, SLUDGE, AND SLURRY SAMPLING 2000
SOP NO. 019	PACKAGING AND SHIPPING SAMPLES, 2014
SOP NO. 024	RECORDING OF NOTES IN FIELD LOGBOOK, 2014
SOP NO. 203	LABORATORY ANALYTICAL DATA VERIFICATION – MINIMUM REQUIREMENTS, 2010
GUIDANCE	HAZARD CATEGORIZATION FIELD CHEMISTRY TESTS, A GUIDE TO CATEGORIZING UNKNOWN MATERIALS IN THE FIELD, 2013